

Sandia National Laboratories / New Mexico

**PROPOSAL FOR NO FURTHER ACTION
ENVIRONMENTAL RESTORATION PROJECT
SITE 63B, BALLOON TEST AREA
OPERABLE UNIT 1333**

FY 1995

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**Environmental
Restoration
Project**



**United States Department of Energy
Albuquerque Operations Office**

**PROPOSAL FOR
NO FURTHER ACTION
Environmental Restoration Project**

**Site 63B, Balloon Test Area:
Balloon/Helicopter Site
OU 1333**

Prepared by
Sandia National Laboratories/New Mexico
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Prepared for the
United States Department of Energy

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1. INTRODUCTION

1.1 ER Site Identification Number and Name

Sandia National Laboratories/New Mexico (SNL/NM) is proposing an administrative no further action (NFA) decision for Environmental Restoration (ER) Site 63B, Balloon Test Area: Balloon/Helicopter Site, Operable Unit (OU) 1333. ER Site 63 is listed in the Hazardous and Solid Waste Amendment (HSWA) Module IV (EPA August 1993) of the SNL/NM Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Facility Permit (NM5890110518) (EPA August 1992).

1.2 SNL/NM Administrative NFA Process

This proposal for the determination of an administrative NFA decision has been prepared using the criteria presented in Section 4.5.3 of the SNL/NM Program Implementation Plan (PIP) (SNL/NM February 1995). Specifically, this proposal will "contain information demonstrating that there are no releases of hazardous waste (including hazardous constituents) from solid waste management units (SWMU) at the facility that may pose a threat to human health or the environment" (as proposed in the Code of Federal Regulations [CFR], Section 40 Part 264.51[a] [2]) (EPA July 1990). The HSWA Module IV contains the same requirements for an NFA demonstration:

Based on the results of the RFI [RCRA Facility Investigation] and other relevant information, the Permittee may submit an application to the Administrative Authority for a Class III permit modification under 40 CFR 270.42(c) to terminate the RFI/CMS [corrective measures study] process for a specific unit. This permit modification application must contain information demonstrating that there are no releases of hazardous waste including hazardous constituents from a particular SWMU at the facility that pose threats to human health and/or the environment, as well as additional information required in 40 CFR 270.42(c) (EPA August 1993).

In requesting an administrative NFA decision for ER Site 63B, this proposal uses existing administrative/archival information to satisfy the permit requirements. This unit is eligible for an administrative NFA proposal based on one or more of the following criteria taken from the RCRA Facility Assessment Guidance (EPA October 1986):

- Criterion A: The unit has never contained constituents of concern (COCs).
- Criterion B: The unit has design and/or operating characteristics that effectively prevent releases to the environment.
- Criterion C: The unit clearly has not released hazardous waste or constituents into the environment.

Specifically, ER Site 63B is proposed for an administrative NFA decision because the site clearly has not released hazardous waste or constituents into the environment (Criterion C).

1.3 Local Setting

SNL/NM occupies 2,829 acres of land owned by the Department of Energy (DOE), with an additional 14,920 acres of land provided by land-use permits with Kirtland Air Force Base (KAFB), the United States Forest Service (USFS), the State of New Mexico, and the Isleta Indian Reservation. SNL/NM has been involved in nuclear weapons research, components development, assembly, testing, and other nuclear activities since 1945.

ER Site 63B (Figure 1-1) is located on land controlled by the DOE and the United States Air Force (USAF) that has been withdrawn from the Bureau of Land Management (BLM) and permitted to the DOE (SNL/NM July 1994). Coyote Springs Road provides access to the site (Figure 1-1). ER Site 63B lies on approximately 8 acres at a mean elevation of 6,173 feet above sea level (SNL/NM April 1995). Immediate topographic relief around the site is less than 100 feet.

ER Site 63B is located on alluvial deposits on a broad floodplain between the confluence of Lurance Canyon and Madera Canyons (Figure 1-1). The composition and thickness of the alluvial deposits at the site are not well defined (IT April 1993). Seismic surveys conducted in Lurance Canyon approximately 1 mile upstream and downstream of the site indicated alluvium thickness ranging from 60 feet (upstream) to 142 feet (downstream) (BGA October 1994). However, alluvium thickness is highly variable in the canyon floors due to changes in shallow bedrock lithology or erosional irregularities along the bedrock/alluvium interface. At ER Site 63B, the alluvial deposits form gentle slopes comprised of Tesajo-Millett stony sandy loams that are underlain by igneous and metamorphic Precambrian rocks (USDA June 1977). Measured permeabilities in the Tesajo-Millett unit range from 0.2 to 20 inches per hour. Precambrian metamorphic rocks (metarhyolite) are exposed in the low hillslopes adjacent to and beneath the alluvium at this site (IT April 1993).

Sediments observed in the lower Lurance Canyon channel downstream of the site consist of coarse-grained sands, gravels, and cobbles originating from depositional processes in the Sol se Mete, Madera, and Lurance Canyons. Alluvium encountered during drilling at the TSA-1 well, located approximately 0.75 mile west of ER Site 63B (Figure 1-1), consists of 57 feet of very coarse sands, pebbles, and cobbles, with minor amounts of clayey sand beds underlain by fractured Precambrian metamorphic rocks (IT May 1994). Drilling logs from the TSA-1 and Burn Site wells indicate that the first saturated ground-water conditions are encountered in fractured Precambrian bedrock under confined to semiconfined hydraulic conditions. The TSA-1 well encountered permeable, saturated fractures in Precambrian rocks at a depth of 180 feet below ground surface (bgs). The Burn Site well, located approximately 1 mile east of ER Site 63B (Figure 1-1), also encountered permeable water-bearing fractures in the Precambrian bedrock at a depth of 230 to 350 feet bgs (IT May 1994). Depth to ground water in the fractured Precambrian rocks expected to underlie the

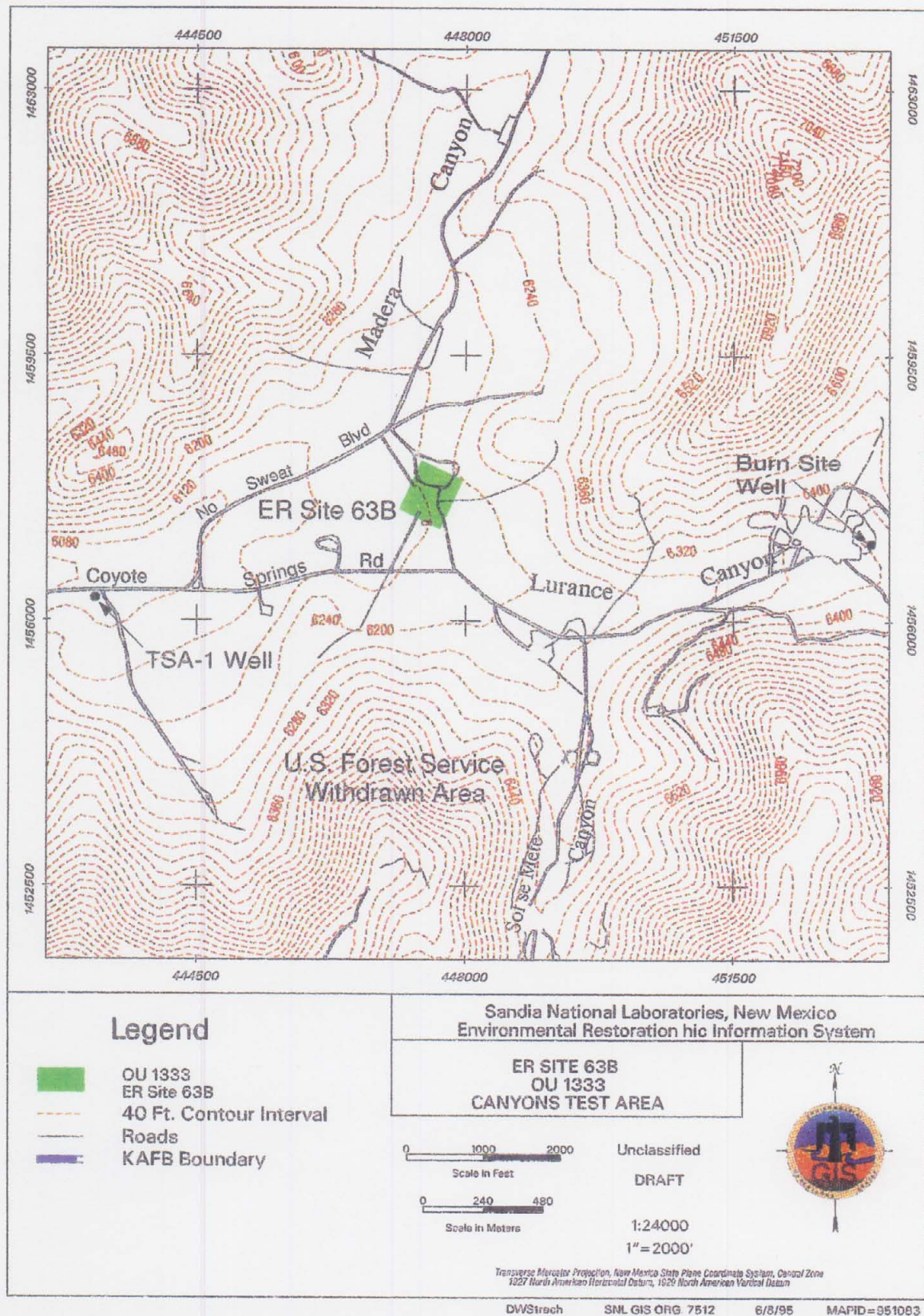


Figure 1-1
Location of ER Site 63B, Test Area: Balloon/Helicopter Site

alluvial deposits at ER Site 63B is not known, as local ground-water flow may be complicated because of abundant fractures and faults in the area. The local hydraulic gradient between the Burn Site and TSA-1 wells indicates that ground-water flow direction in the Precambrian bedrock is westward (IT May 1994).

2. HISTORY OF THE SWMU

2.1 Sources of Supporting Information

In preparing to request an administrative NFA decision for ER Site 63B, a background study was conducted to collect available and relevant site information. Background information sources included existing records and reports of site activity. Interviews were conducted with the SNL/NM staff as well as with contractors familiar with site operational history. The study was completely documented and has provided traceable references that sustain the integrity of this proposal.

The following information sources, hierarchically listed with respect to assigned validity, were available for use in the evaluation of ER Site 63B:

- Four preliminary field survey reports, including data from physical land surveys, radiation surveys, and one unexploded ordnance (UXO)/high explosives (HE) survey
- Six historical aerial photographs spanning 16 years (1975–1991)
- Ten interviews with six current and retired facility personnel
- Photographs and field notes from numerous site inspections conducted by SNL/NM staff
- Miscellaneous information sources, including the SNL/NM Geographic Information System and the SNL/NM personnel correspondence (memoranda, letters, and notes) regarding ER Site 63B
- The Comprehensive Environmental Assessment and Response Program (CEARP) Phase I report (DOE September 1987) and CEARP records contained in the Environmental Operations Record Center

Using this information, a brief history of ER Site 63B and a discussion of all relevant evidence regarding past practices and releases at the site have been prepared and are presented in this proposal for an administrative NFA decision.

2.2 Previous Audits, Inspections, and Findings

ER Site 63 was identified during investigations conducted under the CEARP (DOE September 1987). The CEARP report noted that site operations involved dropping test units from a hot-air balloon, but no residues are expected to exist from these operations. The CEARP report also stated that the balloon test area was used for studying metallic particulate clouds (i.e., the Plutonium Dispersal Studies Project [PDSP]). These studies used HE to produce fine particles of aluminum, iron, depleted uranium, and cerium. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

finding was uncertain for Federal Facility Site Discovery and Identification Findings, Preliminary Assessment, and Preliminary Site Inspection. Sufficient information was unavailable to calculate a Hazard Ranking System score.

2.3 Historical Operations

ER Site 63 was used for three distinctly different test series: (1) tests conducted for the PDSP, (2) balloon/helicopter drop tests, and (3) tethered-rocket tests. Because the test types were conducted in separate areas of the site, ER Site 63 has been divided into two subunits: (1) ER Site 63A, Balloon Test Area: PDSP Site and (2) ER Site 63B, Balloon Test Area: Balloon/Helicopter Site (includes tethered-rocket tests). A chronological summary of testing events at ER Site 63 is given in Table 2-1.

Table 2-1
Chronology of Testing Activities at ER Site 63

Dates	Test Activity	References
1984 - 1985	Balloon/Helicopter Drop Tests SMART Antitank Weapons (ER Site 63B)	63-9, 63-12, 63-26, 63-33, 63-34, DOE September 1987
1985 - 1986	PDSP Tests (ER Site 63A)	63-3, 63-7, 63-8, 63-28, 63-36, DOE September 1987
1987 - 1990	Helicopter Drop Tests Sidearm Antitank Weapon (ER Site 63B)	63-9, 63-12, 63-26, 63-33, 63-34, Appendix A, DOE September 1987
1989 - 1990	Tethered-Rocket Tests (ER Site 63B)	63-33, 63-34, 63-38, Appendix A

Operations at ER Site 63B were designed to satisfy a demand to perform drop tests of antitank weapons from a height greater than the 600-foot drop provided by the facilities at ER Site 81 (New Aerial Cable Site) (63-34). This was accomplished through the use of an unmanned hot-air balloon. The initial balloon drop tests were reportedly performed at ER Site 81 in 1982 to evaluate the feasibility of conducting the tests before moving the test location to ER Site 63B (63-33, 63-43). In August and September of 1984, balloon drop tests were conducted at ER Site 63B. Balloon drop testing at ER Site 63B ceased when the balloon broke free of its tethers in a windstorm and crashed east of the site (63-33). After the destruction of the balloon, drop tests at ER Site 63B were performed from a helicopter (63-33). Tethered-rocket tests were also performed at ER Site 63B in 1989 and 1990. Sections 2.3.1 and 2.3.2 discuss each of these test types in more detail.

Historical aerial photographs record no activity at ER Site 63B prior to 1983 (USGS June 1975, USGS September 1982, USGS June 1983). Aerial photographs of the site location in 1982 and 1983 (USGS September 1982, USGS June 1983) show three roads forming a triangular perimeter around the area that was to become ER Site 63B, but these roads appear to provide access to other areas.

Based on aerial photograph interpretation, ER Site 63B (Figures 2-1 and 2-2a) was active by September 1984 (USGS September 1984). Site features at this time included a square-shaped graded area dissected by crisscrossing linear features and three tether-line roads separated by 120 degrees of azimuth that radiate outward from a point south of the graded area (SNL/NM August 1994). The square-shaped, formerly graded area was used as the balloon drop test area (SNL/NM August 1994, 63-33) and it is located north of the current helicopter drop area (Figure 2-1). The three tether-line roads are still present at the site. Concrete foundations are currently located near each corner of the balloon drop area and are visible in the September 1984 aerial photograph (SNL/NM August 1994). The foundations may have been the mounting points for the former wooden posts used to suspend a horizontal net over the area (63-34). A field inspection noted a September 1983 date engraved in one of the concrete foundations (SNL/NM August 1994), possibly indicating the initial construction date of ER Site 63B.

The next phase of activities at ER Site 63B was the construction of the graded, helicopter drop area south of the balloon drop area (Figures 2-1 and 2-2b) (SNL/NM August 1994, 63-33). The helicopter drop area is visible on the June 1987 aerial photograph (USGS June 1987) and is still present at the site. Concrete foundations containing metal poles are located at each corner of the helicopter drop area and were used to suspend a horizontal net over the graded area. Dates engraved in these concrete foundations imply that construction took place from December 1984 to February 1985. The net height was adjusted with an electric winch assembly located approximately 50 feet south of the southeast corner of the graded area (Figures 2-1 and 2-2c). South of the winch is a 200-foot-long soil berm that trends northeast-southwest. The origin of the soil berm is uncertain, but it may be related to grading activities at the site.

A May 1991 aerial photograph of ER Site 63B (USGS May 1991) shows two features that are associated with the 1989 and 1990 tethered rocket tests (63-33, 63-40): a swivel anchor and a rocket launch rail (SNL/NM August 1994) (Figures 2-1 and 2-2d). These features were positively identified by field inspection and are currently at the site (SNL/NM August 1994) (Figure 2-1).

2.3.1 Balloon/Helicopter Drop Tests

The balloon drop area at ER Site 63B was located north of the current helicopter drop area (Figure 2-1) and was used for balloon drop tests conducted for the Department of Defense (DoD) (DOE September 1987, 63-12, 63-33, SNL/NM August 1994). Interview records state that hundreds of drop tests took place at ER Site 63B between 1984 and 1990 (63-12, 63-34). Initial testing at ER Site 63B used a hot-air balloon to drop SMART antitank

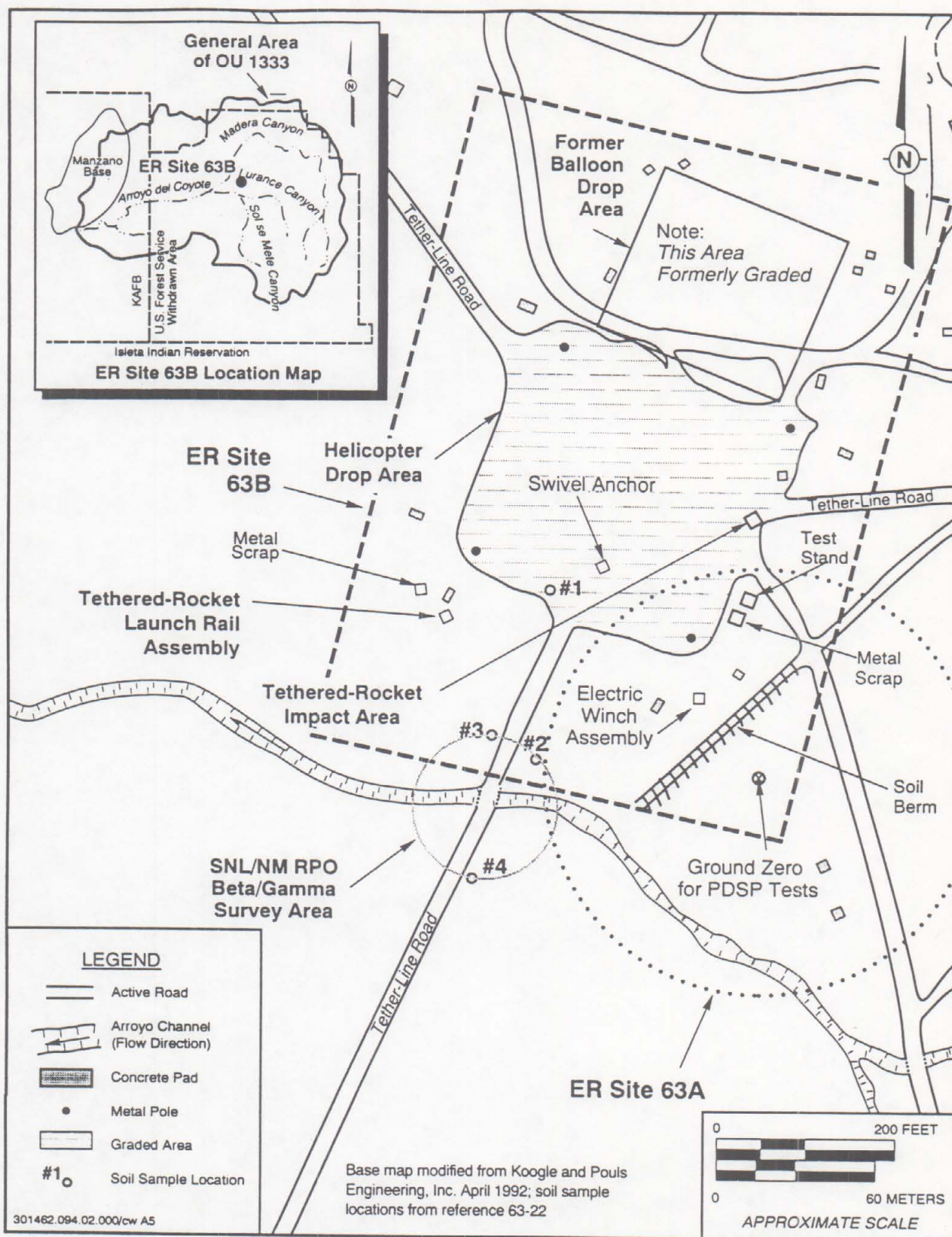


Figure 2-1
Site Map of ER Site 63B, Balloon Test Area, Balloon/Helicopter Site

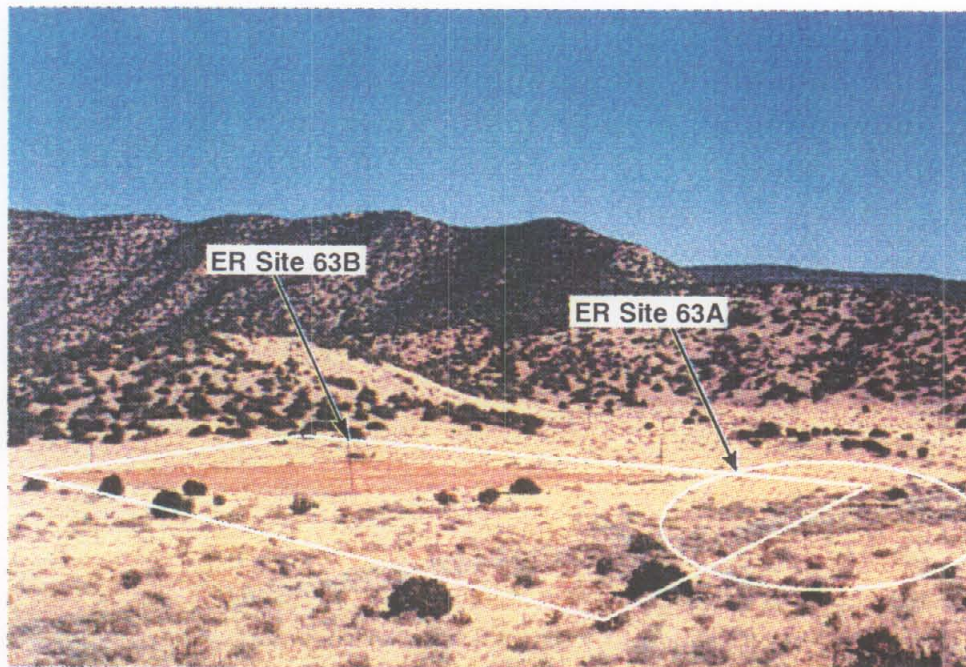


Figure 2-2a.

Photograph of ER Sites 63A and 63B in December 1994. Balloon/helicopter tests were conducted in the graded area at ER Site 63B. ER Site 63A was used to conduct PDSP tests. View is to the east-northeast.

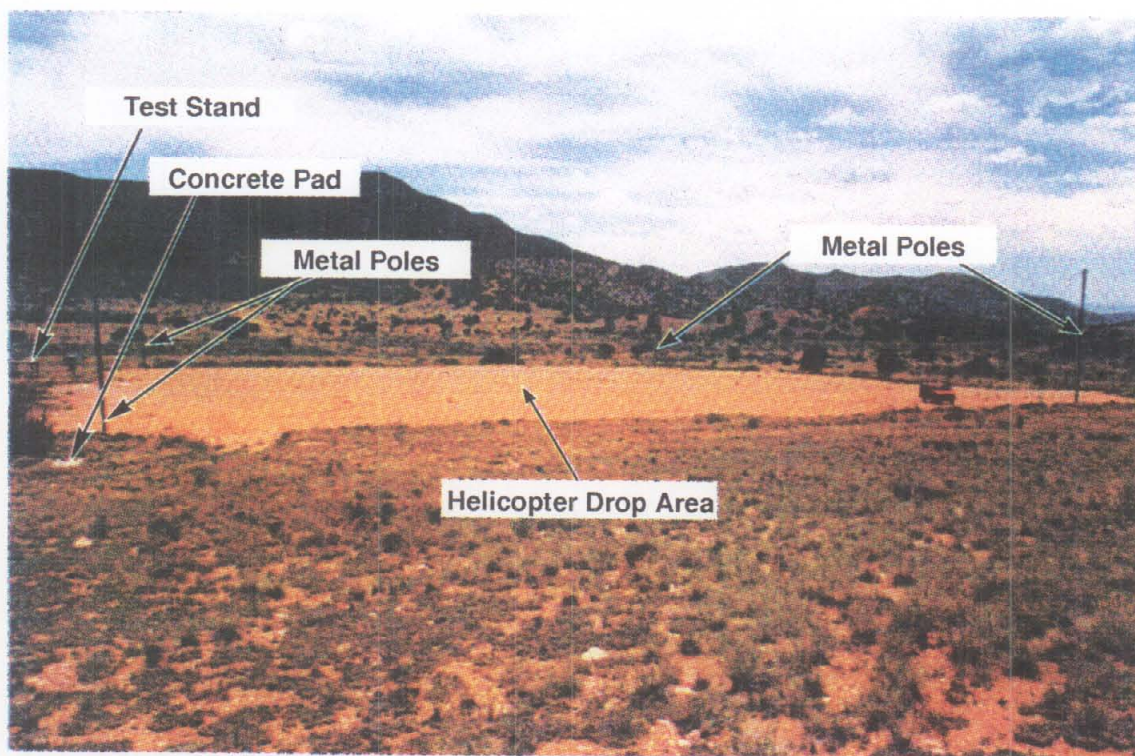


Figure 2-2b.

Photograph of graded, helicopter drop area of ER Site 63B in summer 1994. The four metal poles used to support the net during drop tests are identified. View is to the northwest.

Figure 2-2
ER Site 63B, Balloon/Helicopter Site, Photographs

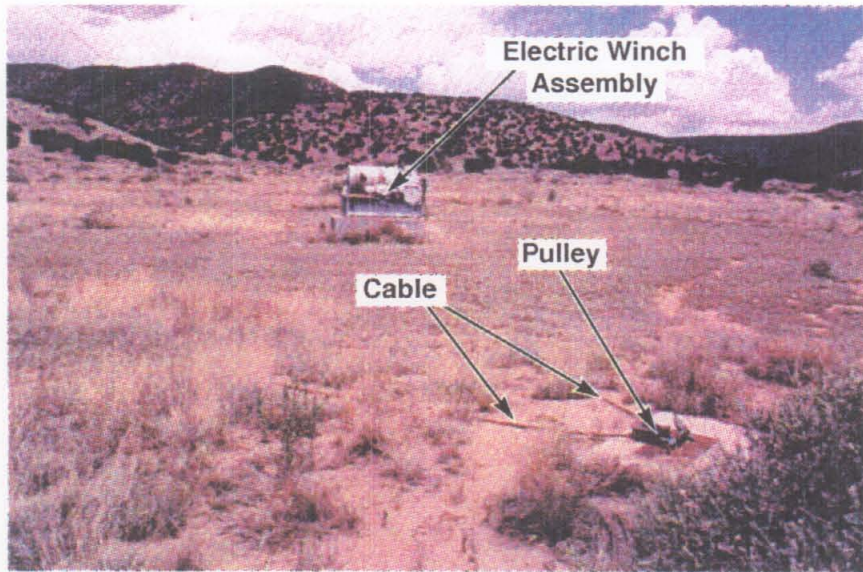


Figure 2-2c.

Photograph (summer 1994) of the electric winch assembly, cable, and one of the pulleys used to adjust the net in the helicopter drop tests performed at ER Site 63B. View is to the east.

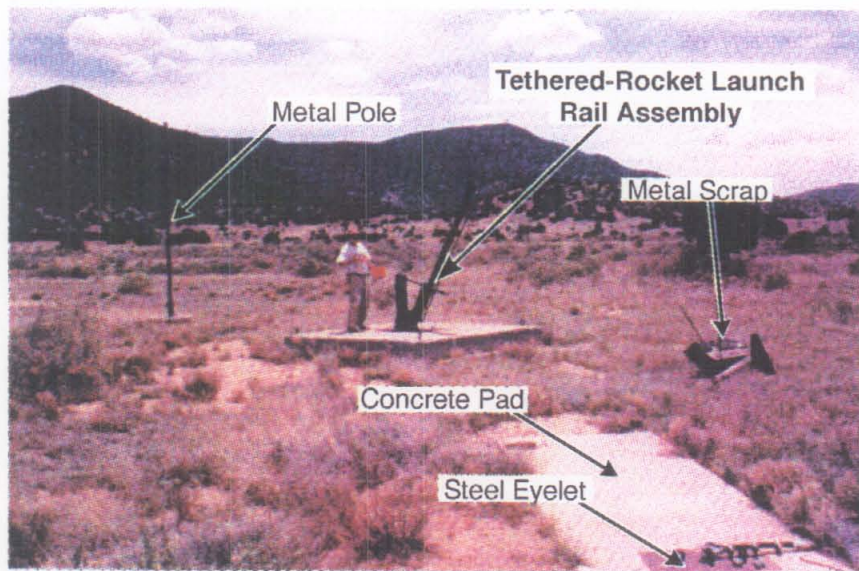


Figure 2-2d.

Photograph (summer 1994) of the rocket launch rail assembly used in the tethered rocket tests performed at ER Site 63B and concrete pad with steel eyelet. View is to the southwest.

Figure 2-2
ER Site 63B, Balloon/Helicopter Site, Photographs (Concluded)

weapons from heights of approximately 1,000 to 1,200 feet (DOE September 1987, 63-33, 63-34). The position of the balloon was controlled by tether lines attached to three vehicles that differentially moved along three tether-line roads until the balloon was stationed over the target (Figure 2-1) (63-1, 63-10, 63-34). SMART antitank weapons were modified prior to testing by replacing the warhead with telemetry instruments that used visual recognition to look for targets (63-9, 63-12, 63-26). The balloon drop tests were conducted over a 6- to 8-week period in August and September 1984 (63-33, 63-34). This test series ended in September 1984 when the balloon broke free of its tethers during a wind storm and crashed east of the site (63-33). After the destruction of the balloon, a helicopter was used to conduct the drop tests (63-12, 63-33, 63-34).

Based on the December 1984 to February 1985 dates engraved into the concrete foundations located at the current helicopter drop area (SNL/NM August 1994), it is assumed that the balloon drop area was succeeded by the current helicopter drop area (Figure 2-1) in early 1985. There are no available records that discuss drop test activities that may have occurred, if any, between 1985 and 1987.

Test records (Appendix A) do exist for 46 helicopter drop tests that were conducted between 1987 and 1990 to investigate the effectiveness of a parachute antitank weapon called the Sidearm (63-9, 63-33, 63-40, DOE September 1987). The Sidearm weapon, about the size of a coffee can, was made inert prior to testing by replacing the warhead with telemetry instruments (63-9, 63-12, 63-26). A vortex-ring parachute was used to slow the terminal velocity of the unit to 70 feet per second and to make the unit spin and hang at an oblique angle to facilitate searching for targets (i.e., tanks) in a 500-foot-diameter circle (63-9). This series of drop tests concluded in 1990.

2.3.2 Tethered-Rocket Tests

Twelve tethered-rocket tests were conducted at the helicopter drop area (Figure 2-1) in 1989 and 1990 (63-40) (Appendix A). These were proof-of-concept tests designed to study the high-velocity impact of steel and aluminum materials (63-33, 63-34) using HVAR and Zuni rockets (63-38). The test unit was mounted on a steeply inclined rocket launch rail assembly (Figure 2-2d) and tethered to a swivel anchor located approximately 200 feet to the east (Figure 2-1). Tethered rockets were guided by the steeply inclined launch rail for the first 5 to 6 feet of flight and then followed an arcing path to the impact area in the northeast portion of the graded area (Figure 2-1). No hazardous or radioactive materials were reported to be associated with the tests (63-33, 63-34).

3. EVALUATION OF RELEVANT EVIDENCE

3.1 Unit Characteristics

ER Site 63B operations included the following features that would have prevented the release of hazardous materials to the environment: (1) telemetry devices substituted for warheads in antitank weapons; (2) a net that was used to catch the antitank devices; and (3) a tethered-rocket launch rail assembly that guided the rocket to a specific impact area where the test materials could be recovered. There are no known hazardous materials associated with the physical features at the site.

3.2 Operating Practices

ER Site 63B was used between 1984 and 1991 to conduct balloon/helicopter drop tests and tethered-rocket tests.

3.2.1 Balloon/Helicopter Drop Tests

Nondestructive drop tests with inert SMART antitank weapon mock-ups were conducted at the balloon drop area (Figure 2-1) using a remote-controlled hot-air balloon in August and September 1984 (63-3, 63-9, 63-33, 63-34, SNL/NM August 1994, DOE September 1987). An unknown number of drop tests were performed.

A helicopter was used for 46 drop tests between 1987 and 1990 (Appendix A) that investigated the effectiveness of a parachute antitank weapon called the Sidearm (63-9, 63-33, 63-40, DOE September 1987). The Sidearm weapon was made inert prior to testing by replacing the warhead with telemetry instruments (63-9, 63-12, 63-26).

Test engineers who conducted the drop tests stated that explosives were never used in the balloon or helicopter drop tests at ER Site 63B (63-9, 63-12, 63-26), and the inert test units contained no hazardous, radioactive, or explosive components (63-9, 63-33, 63-34).

3.2.2 Tethered-Rocket Tests

The southwest portion of the current graded area at ER Site 63B was used to conduct 12 tethered-rocket tests in 1989 and 1990 for the purpose of studying high-velocity impact. HVAR and Zuni rockets, tethered to the swivel anchor located within the graded area, were launched from a rail located to the southwest of the swivel assembly (63-38), and then impacted in the northeast portion of the graded area. No hazardous or radioactive materials were reported to be associated with these tests (63-33, 63-34). However, the exhaust of the HVAR rocket contains a trace amount of lead (Table 3-1). It is not known how many of the 12 tests were conducted with HVAR rockets.

Table 3-1
Exhaust Components From Typical Rocket Motors^a

Rocket Motor	Components Expressed as Weight Percent					
	Carbon dioxide	Carbon monoxide	Water	Hydrogen gas	Nitrogen	Other
Zuni	11.6	42.0	21.2	13.2	11.9	0.1 Unspecified
HVAR	7.3	44.7	14.1	23.5	9.0	0.7 Potassium oxide 0.68 Sulfur dioxide 0.07 Lead

^a Modified from DOE September 1992.

Zuni and HVAR rocket propellant exhaust is composed primarily of carbon dioxide, carbon monoxide, water, hydrogen, and nitrogen (Table 3-1). Most of these combustion products would disperse as gases and aerosols, with some particulate possibly remaining in the launch pad areas. HVAR rocket exhaust contains a trace amount of lead (Table 3-1) and small releases of lead may have occurred when this rocket was fired. However, it is thought that the amount of residual lead associated with the rocket exhaust at ER Site 63B is negligible.

Analytical results from soil samples collected around the Technical Area III (TA-III) rocket sled track, where hundreds of HVAR rockets have been fired (18 HVARs were fired in the past 12 months; 63-45), support the premise that the amount of lead at ER Site 63B is negligible (DOE September 1992). Multiple HVAR rocket motors power the rocket sleds that are fired three to four times a year at the TA-III rocket sled track (63-44). Soil samples adjacent to the track contain lead concentrations of 11 to 18 milligrams per kilogram (mg/kg) (DOE September 1992), which is within the reported range of 1 to 20 mg/kg for background lead concentrations at TA-III (IT October 1994). The soil surrounding the TA-III rocket sled track is a worst-case scenario for potential lead accumulation from rocket propellant exhaust, because the rockets remain in a horizontal trajectory near the ground surface over the entire sled track path. At ER Site 63B, the rockets did not remain near the ground when fired, and the exhaust would have dispersed over a larger area relative to exhaust dispersion at the TA-III rocket sled track. Additionally, less than 12 HVAR rockets were used at ER Site 63B, as opposed to TA-III where hundreds of HVAR rockets have been fired. Therefore, lead is not expected to be present at concentrations above background levels at the ER Site 63B tethered-rocket launch rail. There are no other COCs in the particulate derived from the rocket propellant exhaust.

3.3 Presence or Absence of Visual Evidence

The helicopter drop area, the three balloon tether-line roads, the four drop test net support poles, the electric winch assembly, metal scrap and a test stand, the tethered-rocket launch

rail assembly and swivel anchor, and several concrete pads are the only physical evidence associated with past activities. There is no visual evidence of explosive cratering, shrapnel dispersion, or structural damage, indicating no explosive activities took place at ER Site 63B. This is supported by six historical aerial photographs that show no other activities or structures were present at ER Site 63B between 1975 and 1991 (SNL/NM August 1994).

3.4 Results of Previous Sampling/Surveys

3.4.1 UXO/HE Survey

In October 1993, KAFB Explosive Ordnance Disposal (EOD) conducted a visual survey for UXO/HE on the ground surface of ER Sites 63A and 63B. Ordnance debris found included one expended igniter and three expended shoulder-fired Redeye or SA-7 missile launch motors (63-31). These items are probably associated with ongoing KAFB war-game activities.

3.4.2 Gamma Radiation Survey

In December 1993, RUST Geotech Inc. conducted a surface gamma radiation survey at ER Sites 63A and 63B (RUST Geotech Inc. December 1994). No areas of gamma activity greater than 30% above natural background levels (9 to 13 microroentgen per hour [μ R/hr]) were measured (RUST Geotech Inc. December 1994).

A 1993 surface gamma radiation survey conducted by the SNL/NM Radiation Protection Office (RPO) covered the southwestern portion of ER Site 63B as well as the entry and access roads to the site (63-22, 63-24). All gamma activity was within the background range levels of 8 to 12 μ R/hr (63-22, 63-24). Four soil samples were collected during the survey and submitted for gamma spectral analysis. Three of the samples were obtained from ER Site 63B (Figure 2-1). The range of activity of uranium-238 and thorium-232 in these samples was 0.6 to 0.9 picocurie per gram (pCi/g) and 0.8 to 1.2 pCi/g (63-22), respectively. These activities lie within the observed background range of activity reported for uranium-238 (0.006 to 2.1 pCi/g) and thorium-232 (0.23 to 1.2 pCi/g) in soils present at SNL/NM (IT October 1994).

3.5 Assessment of Gaps in Information

There are no records that indicate hazardous waste or constituents were released or disposed of at ER Site 63B. However, solid rocket propellant containing a trace amount of lead was used at the site. The only potential COC at ER Site 63B would be the trace concentrations of lead from the HVAR rocket propellant exhaust (63-41, DOE September 1992) (Table 3-1).

3.6 Rationale for Pursuing an Administrative NFA Decision

SNL/NM is proposing an administrative NFA decision for ER Site 63B because the site clearly has not released significant amounts of hazardous waste or constituents into the environment (Criterion C). The site was used to conduct balloon/helicopter drop tests with nonexplosive, inert test units and tethered-rocket tests that studied the high-velocity impact of aluminum and steel materials.

An investigation conducted under the CEARP reported that ER Site 63B was used for nondestructive tests and that no residues are expected from the balloon/helicopter drop tests (DOE September 1987).

In October 1993, KAFB EOD conducted a UXO/HE survey and found no live ordnance at the site (63-31). The 1993 gamma radiation surveys of the ground surface found no radioactivity greater than the background-level range of 8 to 13 μ R/hr (RUST Geotech Inc. December 1994, 63-22, 63-24). Three soil samples collected at ER Site 63B by the SNL/NM RPO in July of 1993 and submitted for gamma spectral analysis showed no measured radioactivity greater than background activity levels (63-22, IT October 1994).

Therefore, based on recent field surveys and newly obtained historical information, ER Site 63B is recommended for an administrative NFA decision, because the site clearly has not released significant amounts of hazardous waste or constituents into the environment (Criterion C). However, because one of the trace exhaust components in the HVAR rocket is lead (0.07 weight percent [wt. %]), Criterion C is not strictly met. The amount of lead remaining at ER Site 63B is believed to be insignificant, based on less than 12 tests with HVAR rockets at ER Site 63B and analytical results from soil samples collected around the TA-III rocket sled track where hundreds of HVAR rockets were fired (DOE September 1992).

4. CONCLUSION

Based upon the evidence presented, no potential remains for a release of hazardous waste (including hazardous constituents) that can pose a threat to human health or the environment. Therefore, ER Site 63B is recommended for an NFA determination.

5. REFERENCES

5.1 ER Site References

Section 5.1 contains a comprehensive bibliographical list of the documents relating to ER Site 63B. This list is arranged numerically by the numbers assigned to each document.

ER Site
Reference
Number

Reference

- 63-1. Notes Relating to Site 63, [n.d.]. Sandia National Laboratories, Albuquerque, New Mexico.
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- 63-3. Stueber, T. Interviewed by P. Karas, Sandia National Laboratories, Albuquerque, New Mexico, August 2, 1993, Sandia National Laboratories, Albuquerque, New Mexico.
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- 63-6. Stueber, T. Informal Response to Karas Interview Notes, Sandia National Laboratories, Albuquerque, New Mexico, September 2, 1993, (ER Site 63A only).
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APPENDIX A

OU 1333, Site 63B

**New Aerial Cable Site Logbook
Balloon Test Area
1987-1990**

INTRODUCTION

This appendix has been compiled to identify the tests conducted at ER Site 63B, which were recorded in the logbook entitled "Sandia National Laboratories New Cable Site Facility Log" (81-110) and dated October 22, 1986 through November 6, 1994. All information from the logbook was included in this appendix except the following: the R-number, the consultant organization, the test engineer, the laser tracker file, the wind speed and direction, the temperature, the barometric pressure, miscellaneous remarks, and the console operator. SNL/NM staff were consulted to assist in categorizing the tests, which were recorded in the logbook (81-110). Any tests not identified as belonging to test programs at ER Site 81, New Aerial Cable Site, were assigned to ER Site 63, Balloon/Helicopter Site. SNL/NM staff also assisted in grouping the test programs at ER Site 63 into the following two major test types:

- Parachute/helicopter drop tests
- Tethered rocket tests

Additional detail on some of these tests is provided in Section 2.3 of this proposal.

ER Site 81

Reference Number

81-110. Sandia National Laboratories/New Mexico (SNL/NM), "SNL New Cable Site Facility Log," October 22, 1986 through November 6, 1994. Sandia National Laboratories, Albuquerque, New Mexico.

Appendix A
New Aerial Cable Site Logbook—
ER Site 63: Balloon Test Area
(1987 to 1990)

Test Title	Test Number	Year	Day/Month	Number of Tests
Parachute, drop	1136	1987	18-Jun	1
Parachute, drop	1137	1987	18-Jun	1
Parachute, drop	1138	1987	18-Jun	1
Parachute, drop	1139	1987	18-Jun	1
HELO parachute drop	1331	1988	24-May	1
HELO parachute drop	1332	1988	24-May	1
ART, parachute	1531	1988	1-Dec	1
ART, parachute	1532	1988	1-Dec	1
ART, parachute	1533	1988	1-Dec	1
ART, parachute	1534	1988	1-Dec	1
Parachute, F111	1731	1989	27-Oct	1
Parachute, F111	1734	1989	14-Nov	1
Parachute, F111	1735	1989	14-Nov	1
Parachute, F111	1736	1989	14-Nov	1
Parachute, F111	1987	1990	22-Jun	1
Parachute, F111	1988	1990	22-Jun	1
Ram Air Parachute	2003	1990	17-Sep	1
Ram Air Parachute	2004	1990	17-Sep	1
Ram Air Parachute	2005	1990	17-Sep	1
Ram Air Parachute	2006	1990	18-Sep	1
Ram Air Parachute	2007	1990	18-Sep	1
Ram Air Parachute	2008	1990	18-Sep	1
Ram Air Parachute	2009	1990	18-Sep	1
Ram Air Parachute	2010	1990	18-Sep	1
Ram Air Parachute	2011	1990	18-Sep	1
Ram Air Parachute	2012	1990	18-Sep	1
Ram Air Parachute	2013	1990	18-Sep	1

Appendix A (Continued)
New Aerial Cable Site Logbook—
ER Site 63: Balloon Test Area
(1987 to 1990)

Test Title	Test Number	Year	Day/Month	Number of Tests
Ram Air Parachute	2014	1990	19-Sep	1
Ram Air Parachute	2015	1990	19-Sep	1
Ram Air Parachute	2016	1990	19-Sep	1
Ram Air Parachute	2017	1990	19-Sep	1
Ram Air Parachute	2018	1990	20-Sep	1
Ram Air Parachute	2019	1990	20-Sep	1
Ram Air Parachute	2020	1990	20-Sep	1
Ram Air Parachute	2021	1990	20-Sep	1
Ram Air Parachute	2022	1990	20-Sep	1
Ram Air Parachute	2023	1990	20-Sep	1
Ram Air Parachute	2024	1990	21-Sep	1
Ram Air Parachute	2025	1990	21-Sep	1
Ram Air Parachute	2026	1990	21-Sep	1
Ram Air Parachute	2027	1990	21-Sep	1
Ram Air Parachute	2028	1990	21-Sep	1
Ram Air Parachute	2029	1990	21-Sep	1
Ram Air Parachute	2030	1990	21-Sep	1
Ram Air Parachute	2031	1990	21-Sep	1
Ram Air Parachute	2032	1990	21-Sep	1
Tethered Rocket	1650	1989	9-May	1
Tethered Rocket	1651	1989	10-May	1
Tethered Rocket	1652	1989	10-May	1
Tethered Rocket	1653	1989	12-May	1
Tethered Rocket	1778	1990	22-Jan	1
Tethered Rocket	1780	1990	25-Jan	1
Tethered Rocket	1781	1990	6-Feb	1
Tethered Rocket	1782	1990	8-Feb	1

Appendix A (Concluded)
New Aerial Cable Site Logbook—
ER Site 63: Balloon Test Area
(1986 to 1994)

Test Title	Test Number	Year	Day/Month	Number of Tests
Tethered Rocket	1784	1990	16-Feb	1
Tethered Rocket	1787	1990	1-Mar	1
Tethered Rocket	1790	1990	15-Mar	1
Tethered Rocket	1792	1990	22-Mar	1